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Dear Wholesale Market Reform Team

Subject: OFGEM Call for input following the first Locational Pricing Assessment stakeholder session on 26th May 2022

Shell welcomes the opportunity to provide input after attending the first OFGEM Locational Pricing Assessment stakeholder session.

We are supportive of the OFGEM work, assisted by the engagement of FTI, to quantitatively assess the impact of introducing a Zonal or Nodal market structure into the GB electricity market. We believe it will provide the necessary detailed modelling to build on the desk-top review performed by National Grid ESO (NG ESO).

As an integrated power business with significant interests in generation, trading, and supply, Shell is supportive of a market structure which ensures the delivery of Net Zero at the least cost to consumers.

As outlined in our response to the individual questions below, there are challenges with Locational Marginal Pricing (LMP) which need to be appropriately considered and assessed before we can conclude whether it is the optimal market structure for a Net Zero power system. We see the modelling, the transitional arrangements, the treatment of subsidies and a robust counterfactual as critical in assessing whether LMP will deliver the anticipated benefits.

We understand that the counterfactual assumes the market structure continues as it is now, which we believe is unrealistic as it is widely recognised that the current structure will require reform to deliver Net Zero. We believe that the modelling should include an alternative to nodal pricing such as changes to the Balancing Mechanism and changes to locational network charges.

If you have any questions, we would be happy to discuss in more detail. We look forward to helping shape the review of the LMP for the GB market.

Yours sincerely,

Melanie Ellis
Regulatory Affairs Manager

Question 1: The key opportunities associated with introducing more granular locational pricing in GB?

Efficient asset deployment: We expect that more granular locational pricing will improve the signals for efficient deployment of generation, electricity storage and demand – to the extent that they are able to respond to the economic signal provided. Locational pricing could take various forms including via network charges and a nodal or zonal market design.

Interconnectors: We expect that more granular locational pricing will encourage more efficient dispatch of interconnectors compared to a single national market price. Locational pricing may not have much impact on the location of interconnectors as NG was already aware of congestion zones when deploying the existing interconnectors, but we can see that it may help deliver a better outcome for consumers compared to the existing interconnector regulatory regime.

Question 2: The key implementation challenges, risks, and mitigations?

We believe that implementation of LMP will presents significant challenges, including:

Investment signals: How will investors in unsubsidised generation or storage projects be able to predict prices and revenue streams sufficiently to raise capital during a (say) 5 to 8-year implementation? Even with higher costs of capital, there will be less price predictability which may reduce the likelihood of GB meeting its renewable targets.

Similarly, for subsidised generation there would need to be a change to subsidy design as the current Contract for Difference (CfD) design would not provide a locational signal. As significant new capacity will be deployed under the CfD regime, the lack of a locational signal could significantly blunt the anticipated benefit of the locational signal that LMP may provide for investment.

Starting position: Unlike other nodal markets which have transitioned to nodal from being a nationalised monopoly power market, the GB market would need to move to nodal from the complex privatised market structure that we have today with many counterparties holding bilateral agreements across the energy market. This will put pressure not only on the regulators to implement but on the process and systems of all market participants.

Operational complexity: A more granular location pricing regime will increase the complexity for market participants which may result in fewer participants and be a blocker to new entrants.

Real time transparency: There is a risk that market participants do not have full visibility of real-time transmission congestion and of new generation or demand deployment, all of which will impact their ability to participate effectively in locational markets.

Liquidity: Risk that there will be insufficient liquidity which will be of particular importance to suppliers looking to hedge customer load.

Counterfactual: We understand the counterfactual is that the market structure continues as it is, but we don't believe this is sensible as the current structure will require reform to deliver Net Zero at least cost to consumers. We believe that the modelling should include an alternative to nodal pricing such as changes to the Balancing Mechanism and locational network charges.

Question 3: The proposed approach to modelling zonal and nodal market designs?

We see the modelling assumptions as critical to market support for a LMP and suggest that OFGEM and FTI share their final assumptions with the market once they have reflected on feedback. It might be helpful for Ofgem and the consultants to effectively take an open book approach to the modelling.

There are a few assumptions which we believe need further consideration. In particular:

- **Distribution congestion management:** The modelling must take account of congestion management at the distribution level to be reflective of the whole system. While it is a nascent market, it is growing, and the interaction of Transmission and Distribution congestion management will be necessary for an efficiently functioning market. We consider that failing to take this into consideration risks significantly reducing the relevance of the modelling results.
- **Transmission capacity:** We believe the infrastructure build out may be different under a LMP market design and therefore it may be more realistic to allow the model to endogenously determine what infrastructure needs to be built and where. However, if the NOA build is used, then we recommend reflecting to what degree historical NOA plans were delivered. In addition, we also recommend stating the assumption for offshore grid connections.
- **Customer price volatility:** The assumption for LMP for demand need to consider how the economic dispatch compares to a socially equitable one and what will be politically acceptable.
- **Financial Transmission Rights:** How will the risk and costs of managing geographic price spreads be modelled? Will the model assume the use of Financial Transmission Rights and how will they operate?
- **Renewable dispatch:** How will the model consider renewable dispatch? The Renewables Obligation and the Contract for Difference (CfD) affect dispatch decisions. What reference prices will be used for the CfD? Will the model assume that future renewable generation has a CfD?
- **Liquidity:** How will the model consider and reflect potential concerns regarding liquidity and market power at particular nodes?
- **Counterfactual:** The counterfactual for a LMP or zonal market should factor in the market outcome following Balancing Mechanism actions rather than comparing LMP or Zonal market to the market outcome at Day Ahead or even at close of within day markets. This is because the modelling should compare the cost of achieving optimal dispatch under the different models.
- **Efficiency of interconnector dispatch:** On the one hand we expect that introducing LMP or Zonal pricing will improve the efficiency of interconnector dispatch as it should reduce the likelihood of an interconnector exacerbating a constraint. However, we do not have good visibility or information on the approach or cost to NG ESO associated with managing this today. A move to LMP may reduce the efficiency of dispatch if, as a result, the design of the GB power market diverges significantly from that in neighboring countries.
- **Investment signals:** As set out above a more granular locational signal (whether through network charging, zonal or nodal markets) is likely to provide a more granular signal for investments. A concern with nodal markets is that the connection of a large generator, such as an offshore wind farm, at a particular node could have a significant and hard to forecast impact on price levels at that node. It would be good to understand better the potential challenges associated with this and approaches to mitigate that risk.
- **Comparison countries:** We recommend a detailed comparison of other nodal markets considering areas such as:
 - how was the transition managed e.g., from a nationalized position to nodal etc.
 - how were subsidies changed in a LMP market? Were historical subsidies grandfathered?

- how locational pricing is determined for customers e.g., is it smoothed?
 - How were investment signals managed during transition?
 - How was liquidity impacted by LMP?
 - Are Offer Price caps used?
 - What were the costs and benefits to the industry of the recent zonal implementations in Sweden, Austria, and Germany?
- **DSR:** How will demand interact with price? How is this expected to evolve as the market matures? How will demand be managed via central dispatch?